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17. The device of Claim 16, wherein the limiting aperture is circular and has a limiting aperture dimension that is a diameter of at least 100 microns and at most 500 microns.

18. The device of Claim 17, wherein the limiting aperture is circular and has a limiting aperture dimension that is a diameter of at least 150 microns and at most 400 microns.

19. The device of Claim 16, wherein when there is relative displacement between the fiber optic readhead arrangement and scale grating pattern along the measuring axis direction, each respective optical output signal comprises a sinusoidal function of the relative displacement, and each such sinusoidal function varies from an ideal sinusoidal function by at most 1/16 of the peak-to-peak variation of each such sinusoidal function.

20. The device of Claim 19, wherein each such sinusoidal function varies from an ideal sinusoidal function by at most 1/32 of the peak-to-peak variation of each such sinusoidal function.

21. The device of Claim 1, wherein the fiber optic readhead arrangement is located on a first side of the scale grating pattern, the scale grating pattern includes transparent elements that transmit transmitted light arising on a second side of the scale grating pattern, and the operable image arises from transmitted light that enters the imaging lens.

22. The device of Claim 1, wherein the fiber optic readhead arrangement is located entirely on a first side of the scale grating pattern, the scale grating pattern includes reflective elements that are at least partially reflective and that reflect reflected light arising on the first side of the scale grating pattern, and the operable image arises from reflected light that enters the imaging lens.

23. The device of Claim 22, wherein the fiber optic readhead arrangement comprises at least one respective source of light, the light is emitted from the fiber optic readhead arrangement to illuminate the scale grating pattern, and at least some of the